## **EUROPEAN PATENT OFFICE**

## **Patent Abstracts of Japan**

**PUBLICATION NUMBER** 

2001065901

**PUBLICATION DATE** 

16-03-01

APPLICATION DATE

23-08-99

APPLICATION NUMBER

11235746

APPLICANT: TOTO LTD;

INVENTOR:

**FUKUSHIMA KOSUKE**;

INT.CL.

F24D 17/00 E03B 7/12 E03C 1/02

F16L 1/00 // F24D 3/10

TITLE

PIPING DEVICE



PROBLEM TO BE SOLVED: To reduce the fall of hot water temperature in a hot water supply main pipe and the amount of a fall in water temperature to prevent freeze by constituting at least one of a water supply main pipe and the hot water supply main pipe as a double pipe having an inner layer pipe and outer layer pipe, by providing a water flow part inside the inner layer pipe, and by making the space comprising the inner layer pipe and the outer layer pipe airtight.

SOLUTION: A heat insulating water supply pipe 1 is provided with an inner layer pipe 2 and an outer layer pipe 3 in the form of including this inner layer pipe 2, and it is constituted to be capable of water supply through a water supply opening 5 that communicates with the inside of the inner layer pipe 2. Moreover, the inner layer pipe 2 and the outer layer pipe 3 comprise a space 4, and a branch hole 6 communicating with the inside of the inner layer pipe 2 and protruding from the outer layer pipe 3 is provided. Since the space 4 is constituted airtightly, manufacturing the space 4 to create a sub-vacuum therein maintains the sub-vacuum condition semi-permanently. If fluid in the inner layer pipe 2 is hot water, its temperature is maintained without falling. If the fluid in the inner layer pipe 2 is cold water, its temperature is maintained without rising or falling.

COPYRIGHT: (C)2001,JPO